REMARKS

Claim 44 has been amended. Claims 13-14, 17-22, 25-29, 32-45 and 56-58 remain pending. Applicants reserve the right to pursue the original claims and other claims in this and other applications. Applicants respectfully request reconsideration of the above-referenced application in light of the amendments and following remarks.

At the outset, Applicants acknowledge with appreciation, that the Office Action dated October 28, 2005, indicates that claims 13-14, 17-22, 25-29, 32-43 and 45 contain allowable subject matter and are in immediate condition for allowance (p. 2).

Applicants note that the Office Action, dated October 28, 2005, rejects claims 56-58 which were added in the Amendment filed on August 17, 2005. Claims 56-58 were added in response to the non-final Office Action dated June 20, 2005. In the non-final Office Action, dated June 20, 2005, dependent claims 16, 24 and 31 were indicated as being in condition for allowance, if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Consequently, the allowable subject matter of dependent claim 16 was rewritten as claim 56. The allowable subject matter of dependent claim 24 was rewritten as claim 57. The allowable subject matter of dependent claim 31 was rewritten as claim 58. As a result, claims 56-58 should also be in condition for allowance along with the indicated allowable claims of 13-14, 17-22, 25-29, 32-43 and 45.

Claims 44 and 56 (previously deemed allowable) stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,981,398 ("Tsai") in view of U.S. Patent No. 5,534,462 ("Fiordalice"), U.S. Patent No. 5,733,712 ("Tanaka"), and U.S. Patent No. 4,722,913 ("Miller"). The rejection, based on four disparate references, is respectfully traversed.

The Office Action indicates that the cited prior art "does not anticipate or make obvious an oxide formed over [a] substrate; a layer that is transparent to light formed over said substrate and having a first thickness; and an anti-reflective coating formed beneath the transparent layer and on said oxide layer and having a second thickness, wherein said first thickness is greater than the second thicknesss." (p. 5-6, in the Allowable Subject Matter section). Claim 44 has been amended to incorporate subject matter similar to that indicated as being allowed.

Thus, claim 44 recites a semiconductor device comprising, "a silicon oxide layer formed over a surface of a substrate; an anti-reflective coating layer *formed on* said silicon oxide layer having a first thickness; and a layer which is transparent to the wavelength of light formed over the anti-reflective coating layer having a second thickness, *wherein said first thickness is greater than said second thickness.*" (emphasis added). The prior art does not teach or suggest the amended claim features recited in claim 44.

The cited references do not disclose that an anti-reflective coating layer is *formed on* a silicon oxide layer. Tsai discloses that target layer 12 is formed on substrate 10 (FIG. 1). An optional blanket silicon oxide layer 13 is formed on layer 12 which arguably corresponds to Applicants' claimed anti-reflective coating layer (Col. 6, ll. 30-44 and FIG. 1). A blanket hard mask layer 14 is then formed on layer 13 (FIG. 1).

In Tsai, the optional blanket target layer 12 "is formed of a material which is susceptible to etching within a chlorine containing plasma . . . [and] [m]aterials which are susceptible to etching within such chlorine containing plasmas include but are not limited to certain metals, metal alloys and metal silicides, as well as polysilicon and several polycides (polysilicon/metal silicide stacks)." (Col. 6, ll. 8-17).

Consequently, Tsai's optional blanket target layer 12 "may be formed of any of the foregoing materials." (Col. 6, ll. 17-18). Tsai does *not* disclose or suggest that the optional blanket target layer 12 is an oxide layer. Thus, Tsai's optional blanket silicon oxide layer 13, which arguably corresponds to Applicants' claimed anti-reflective coating layer, is formed *not* on an oxide layer but on a polycide or metal layer.

Fiordalice is relied upon for disclosing BPSG, PSG, TEOS, and SOG as conventionally used interlayer dielectric materials (Office Action, pg. 4), and adds nothing to rectify the associated deficiencies of Tsai. Tanaka is relied upon for disclosing that SOG and PSG layers are transparent to light having a wavelength of 248 and 365 nm (Office Action, pg. 4), and adds nothing to rectify the associated deficiencies of Tsai and Fiordalice. Miller is relied upon for disclosing that it is conventional in the art to provide an insulating layer over a semiconductor substrate (Office Action, pg. 4), and adds nothing to rectify the deficiencies associated with Tsai, Fiordalice, and Tanaka.

At best, the cited references, if properly combinable – which they are not, disclose a structure in which Tsai's blanket target layer 12 would be formed *on* an oxide layer rather than Tsai's silicon oxide layer 13. Tsai specifically teaches that the silicon oxide layer 13, which arguably corresponds to Applicant's claimed anti-reflective coating layer, is formed *on* the blanket target layer 12.

Applicants further submit that there is no motivation to combine the cited references. Tsai relates to a "method of forming a chlorine containing plasma etched patterned layer." (Abstract). To this end, Tsai discloses that "the blanket hard mask layer 14 is formed from a material selected from the group consisting of silsesquioxane spin-on-glass (SOG) materials and amorphous carbon materials." (Col. 6, ll. 45-49). Employing a hard mask layer 14 consisting of these materials "provides advantages in

comparison with a patterned hard mask layer formed employing a silicon oxide material as is otherwise conventionally employed when forming hard mask layers." (Col. 7, ll. 30-37). Fiordalice relates to forming "conductive plugs in a semiconductor device without the use of common titanium and titanium nitride glue layers which line the plug opening." (Col. 2, ll. 66-67; Col. 3, ll. 1-2). Tanaka relates to forming "a resist pattern including an anti-reflective film." (Col. 3, ll. 20-30). Miller relates to forming "doped semiconductor vias to contacts." (Abstract). The only thing in common among these four references is the respective substrates on which their structures are formed. Each reference is directed to different processes solving different problems. There is simply no motivation in the references themselves for the proposed combination.

Claims 57-58 (previously deemed allowable) stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsai in view of Fiordalice, Tanaka and Miller, and further in view of Applicants' Own Admission in the Present Specification. The rejection using these *five* references is respectfully traversed.

Applicants respectfully submit that claims 57-58 should be in immediate condition for allowance. As indicated above, the allowable subject matter of dependent claim 24 was rewritten as claim 57. Similarly, the allowable subject matter of dependent claim 31 was rewritten as claim 58. The non-final Office Action, dated June 20, 2005, indicated that the dependent claims 24 and 31 would be in condition for allowance if rewritten in independent form with any intervening claims. Claims 57 and 58 are the result of the Office Action's indications that claims 24 and 31 contained allowable subject matter.

Moreover, the *five* cited references do not disclose or suggest a semiconductor device comprising, "a layer formed over a substrate that is transparent to light having a wavelength of approximately 365 nm, wherein said transparent layer includes an oxide material selected from the group consisting of BPSG, PSG and TEOS; and a first anti-reflective coating formed beneath the transparent layer," as recited in claim 57.

Similarly, the *five* cited references do not teach or suggest a semiconductor device comprising, "a layer formed over a substrate that is transparent to light having a wavelength of approximately 193 nm, wherein said transparent layer includes an oxide material selected from the group consisting of BPSG, PSG and TEOS; and a first anti-reflective coating beneath the transparent layer," as recited in claim 58.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

By _____

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